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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/711,395

09/16/2004

A. John Speranza

03-023

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PROTON ENERGY SYSTEM  
10 TECHNOLOGY DRIVE  
WALLINGFORD, CT 06492

EXAMINER

RAMILLANO, LORE JANET

ART UNIT

PAPER NUMBER

1797

MAIL DATE

DELIVERY MODE

09/05/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/711,395	<b>Applicant(s)</b> SPERANZA ET AL.	
	<b>Examiner</b> LORE RAMILLANO	<b>Art Unit</b> 1797	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 27 May 2008.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 10-13, 15-18 and 28-31 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 10-13, 15-18 and 28-31 is/are rejected.
- 7) ☒ Claim(s) 16 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 September 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### **Status of Claims**

1. In Applicant's reply filed on 5/27/08, applicant amended claims 10, 15, 16, and 28. Claims 10-13, 15-18, and 28-31 are pending and under examination.

### **Response to Amendment**

#### **Claim Objections**

2. Claim 16 is objected to because of the following informalities: the status identifier for this claim should be changed to "currently amended" since applicant made changes to the claim language. Appropriate correction is required.

#### **Prior art rejections**

3. The rejections over the prior art are maintained.

#### ***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 10-13 and 15-18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 10 is indefinite because of the claim language, "said electrical generator," and "said hydrogen cooled generator." The additional recitation of "said hydrogen cooled generator" makes the claim indefinite because it cannot be determined whether the "electrical generator" recited earlier in the claim is referring to the "hydrogen cooled electrical generator" or the "electrical generator"

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recited in the preamble. The Office recommends amending the term, “electrical generator,” to recite “hydrogen cooled electrical generator,” to clearly indicate that the “hydrogen cooled electrical generator” is fluidly coupled to the hydrogen generator and to the vent line if that is what applicant intended to claim. For examination purposes, the Office will interpret “electrical generator” in the body of the claim to be “hydrogen cooled electrical generator.”

***Claim Rejections - 35 USC § 103***

6. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

7. **Claims 10-13, 15-18, and 28-31** are rejected under 35 U.S.C. 103(a) as being unpatentable over Harada (US Pub. No. 2003/0141200) in view of Brosnihan et al. (“Brosnihan,” US 2003/0090164) and Gajjar et al. (“Gajjar,” US 4891629).

In figures 9 and 13, Harada discloses a system for maintaining hydrogen purity in an electrical generator, the system comprising: a hydrogen generator (i.e. 201) having means for disassociating water into hydrogen and oxygen gas (i.e. PEM, [0101]); an electrical generator (i.e. 261) coupled to said hydrogen generator (i.e. 201) by a conduit (figure 13 shows conduit between 201 and 261); a vent line (i.e. vent line coupled to 259) having a first and second end, said first end being fluidly coupled to said electrical generator and said second end being fluidly coupled to the atmosphere (i.e. from 261 to 259); a valve (i.e. 258) coupled to said vent line (i.e. from 261 to 259) and is between the electrical generator and the second end of the vent line; a purity monitor (i.e. 235) operably coupled to

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said generator (i.e. 261) and said valve (i.e. 258), said purity monitor including means for transmitting a signal to said valve (i.e. [0239]); and, a pressure transducer (i.e. 270) fluidly coupled to said conduit, said pressure transducer transmitting a signal to said hydrogen generator in response to the gas pressure in said electrical generator falling below a first threshold wherein said hydrogen generator produces hydrogen gas in response to said pressure transducer signal (i.e. [0225]-[0229]).

Harada further discloses the following: the valve operates to release hydrogen gas from said electrical generator to the atmosphere in response to a signal from said purity monitor (i.e. 258, [0201]); the hydrogen generator is configured to generate hydrogen gas at a second threshold pressure, said hydrogen generator producing hydrogen gas in response to a reduction in pressure in said electrical generator (i.e. 201, [0201]); the hydrogen generator is an electrochemical generator having at least one polymer electrode membrane (i.e. [0101]); a pressure monitor (i.e. 254); and a hydrogen purifier (i.e. 233) coupled to said generator (i.e. 261) and provides a signal to the valve when the purity of hydrogen gas in the electrical generator is less than 95% or 99% pure.

Harada does not specifically disclose a hydrogen cooled generator fluidly coupled to receive hydrogen gas from the hydrogen generator.

Brosnihan discloses a system comprising a hydrogen cooled electrical generator (70), which is fluidly coupled to receive hydrogen gas from a hydrogen supply (104); a valve (i.e. solenoid valve), which may be operated to release hydrogen cooling gas from the electrical generator in response to a signal from

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the purity monitor [0024]); a purity monitor (hydrogen gas purity monitoring module, 20, Figs. 2 and 3); a pressure monitor [0027]-[0028]; a hydrogen purifier (hydrogen gas purity monitoring module monitors hydrogen cooling gas to optimize purity levels, [0020]-[0021]); and a signal is provided by the purity monitor when the purity of the hydrogen gas is lowered [0020]-[0021].

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to modify Harada's system by substituting his electrical generator for a hydrogen cooled electrical generator and fluidly coupling it to his hydrogen generator since it would improve production and be more cost-efficient since Harada's system already comprises a hydrogen generator.

The modified Harada does not specifically disclose having a hydrogen cooled electrical generator coupled to a turbine.

Gajjar discloses a binary gas analyzer instrument and analysis method for determining percent composition of a cooling gas within a turbine generator. The instrument includes a measurement block having a plurality of cells therein, some of which comprise sealed cells containing a known reference gas. (i.e. Abstract). It would have been obvious to a person of ordinary skill in the art to modify the modified Harada by coupling the hydrogen cooled electrical generator to a turbine because turbine driven electrical generators have been used in the industry for many years for hydrogen cooling, and thus it would be cost-efficient to incorporate a turbine to generate electricity from the hydrogen cooled electrical generator.

***Response to Arguments***

8. Applicant's arguments filed 5/27/08 have been fully considered but they are not persuasive.

In response to applicant's argument that Harada does not disclose, teach or suggest a gas conduit that couples the electrical generator to the hydrogen generator, the Office respectfully disagrees. The Office action, filed on 2/25/08, indicated on p. 4 that Harada does not specifically disclose a hydrogen cooled generator fluidly (i.e. via gas) coupled to receive hydrogen gas from the hydrogen generator. In the Office action, Brosnihan was cited since Brosnihan discloses a hydrogen cooled generator fluidly coupled to a hydrogen supply (see p. 4 of the Office action). Furthermore, the Office took the position that at the time of the invention, it would have been obvious to a person of ordinary skill in the art to modify Harada's system by substituting his electrical generator for a hydrogen cooled electrical generator and fluidly coupling it to his hydrogen generator since it would improve production and be more cost-efficient since Harada's system already comprises a hydrogen generator.

In response to applicant's argument that Harada or Brosnihan does not teach, disclose or suggest a vent line that is directly coupled to the electrical generator, the Office respectfully disagrees. As stated above, the Office action, filed on 2/25/08, indicated on p. 4 that Harada does not specifically disclose a hydrogen cooled generator fluidly (i.e. via gas) coupled to receive hydrogen gas from the hydrogen generator. In the Office action, it was disclosed that

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Brosnihan has a valve to release hydrogen cooling gas from the electrical generator (see p. 4 of Office action and para. [0020]-[0021] of Brosnihan).

In response to applicant's argument that Harada's resistivity meter (i.e. 235) fails to perform as the claimed invention's recited "hydrogen purity monitor," the Office respectfully disagrees. The term, "hydrogen purity monitor," may be broadly interpreted to be a monitor that is capable of performing the function of determining for hydrogen purity. Harada's resistivity meter is a type of monitor capable of determining for hydrogen purity (see also para. [0189]).

In response to applicant's argument that Harada's resistivity meter does not include a means for transmitting a signal to the valve that is positioned between the second end of the vent and the hydrogen cooled electrical generator, the Office respectfully disagrees. Based on the full disclosure of Harada, the pressure controller of Harada transmits a signal to a valve (i.e. 258) when the pressure controller senses, i.e. the pressure of oxygen is higher than the pressure of hydrogen (i.e. para. [0115]).

In response to applicant's argument that the combination of Harada and Brosnihan fails to perform as the claimed invention performs by substituting Brosnihan's solenoid valve into Harada's invention, the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA



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1981). Furthermore, based on the disclosure of Brosnihan, it does not appear that Brosnihan has limited his invention to only utilizing solenoid valves since he discloses utilizing manual type of valves (i.e. para. [0019]).

### ***Conclusion***

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LORE RAMILLANO whose telephone number is (571) 272-7420. The examiner can normally be reached on Mon. to Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill Warden can be reached on (571) 272-1267. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Samuel P Siefke/  
Primary Examiner, Art Unit 1797

Lore Ramillano  
Examiner  
Art Unit 1797